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Soil and Water Conservation News

United States
Department of
Agriculture

Soil
Conservation
Service

December 1989

Volume 10, Number 9



Wildlife, Wetlands, and CRP

Cover: There are many ways farmers and ranchers can improve habitat for wildlife. Through planting appropriate trees, shrubs, and food plots, and providing water, they can attract wildlife such as these Canada geese to their property. (Photo by Ron Nichols.)

Comments from the SCS Chief:

Soil and Water Conservation News is the official magazine of the Soil Conservation Service. The Secretary of Agriculture has determined that publication of this periodical is necessary in the transaction of public business required by law of this Department. Use of funds for printing *Soil and Water Conservation News* has been approved by the Director of the Office of Management and Budget. *Soil and Water Conservation News* (ISSN-0199-9060) is published 12 times a year. Postage paid at Washington, D.C.

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Subscriptions
Send subscription orders to: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402

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Enhancing Wildlife Habitat

We hear a lot about farmers AND environmentalists, as if they were two different species, when we really should be hearing about farmers AS environmentalists. No one is more concerned than those who live on and work the land about the legacy of the land, water, and wildlife that they will be passing along. They see and live firsthand the importance to their heirs of stewardship of those resources.

Today on the land you can see evidence of this stewardship:

- By planting food plots, farmers and ranchers are attracting some of the millions of birds that migrate each spring and fall.
- Applying conservation methods such as conservation tillage, introduced to control soil erosion, benefits wildlife. Reducing tillage lowers the chances of destroying nests in the field. Surface residue provides food and cover for many birds and small mammals.
- Restoring and establishing wetlands such as ponds on farms and ranches and entering wetlands in the Conservation Reserve Program provide habitat for waterfowl and other wildlife species.
- By modifying forestry practices, many landowners are finding they can "grow" both trees and wildlife such as deer. Hunting leases can provide supplemental income. But, not everyone hunts with a gun. Photographers and bird-watchers also enjoy the wildlife and sometimes lease land for a place to enjoy it.

There are new opportunities for public/private cooperation to conserve wildlife habitat. Based on "The North American Waterfowl Management Plan," U.S. and Canadian governments have agreed to pursue a plan of action between now and the year 2000 to ensure the continued survival of good populations of ducks, geese, and swans. SCS and conservation districts are among the many agencies and organizations providing financial and technical assistance under the plan. What is needed to make the agreement work is participation by all levels of government—regional and local, as well as Federal—and by private organizations and citizens, hunters and nonhunters alike.

By managing their lands to conserve soil and water resources, by making that extra effort to improve wildlife habitat, farmers and ranchers are practicing good stewardship.



Wildlife

Impact on Wildlife Guided SCS From Start

AS HUGH HAMMOND BENNETT went about assembling a team to start soil conservation demonstrations in late 1933, Aldo Leopold's classic *Game Management* had just been published. Its central thesis, and the central thesis of the new discipline of game management, held that "game can be restored by the creative use of the same tools which have heretofore destroyed it — axe, plow, cow, fire, and gun."

The concept fit perfectly the notion of rearranging farming operations to conserve soil. Methods for wildlife conservation could be used on the farm in conjunction with soil conservation methods.

Leopold and others had come to realize that publicly owned wildlife areas could help preserve some large predators and provide habitat for some migratory birds, but the impact of these publicly owned areas was limited. The use of the vast areas in farmland would eventually determine the nature of the nation's wildlife population. The realization that public agencies alone could not provide for healthy wildlife popula-

Field borders slow water runoff and provide edge habitat for wildlife. In this 1951 photograph, G. T. Wilson of Summerfield, S.C., stands in front of a *Lespedeza bicolor* border with Virginia pine in the background. (Photo by John W. Busch.)



tion was in part the foundation of Leopold's concept of a land ethic — that it was the responsibility of all land users to conserve land resources, including wildlife.

Hugh Bennett, his small staff, and a group of professors at the University of Wisconsin planned a soil conservation demonstration project for Coon Valley, Wis. Leopold, then a University of Wisconsin professor, suggested that biologist Ernest Holt be hired to add wildlife considerations to project plans. In Bennett, the founder of SCS, Leopold found a ready convert who supported the integration of wildlife conservation into soil conservation programs.

Bennett, who had hunted the woods in his youth and tramped the country as a soil scientist, had reached the conclusion that wildlife was less abundant than in his youth. Bennett also had written seminal articles on the influence of erosion on vegetational change. While he did not dwell on the effects on wildlife, the impact on quality and quantity of food for wildlife was clear.

Farming had at one time benefited some varieties of wildlife. The inter-spersion of forests, swamps, and fields of small grains and other food crops provided the three crucial elements of survival — cover, food, and water — and actually resulted in an increase of bobwhite, cottontail rabbits, and certain nongame birds. The "edges" or zones between different vegetational types gave wildlife a variety of habitats that increased their ability to thrive.

But larger fields and the use of heavy, modern equipment reduced this variety and caused a decrease in

wildlife habitat. Merging wildlife considerations with soil conservation sought to re-create these edges or zones of habitat.

Fencing of woodlands to eliminate grazing reduced erosion, improved timber production, and provided more wildlife habitat. Stripcropping, especially with hay crops and small grains, benefited wildlife. Field borders slowed water runoff and provided more edges for wildlife habitat. Biologists recommended plants with high wildlife value for badly eroded areas.

In addition to Coon Valley, other demonstration projects in North Carolina, Pennsylvania, and South Dakota employed biologists. But the discipline had little presence in USDA until a Secretary of Agriculture's memorandum in November 1935 authorized a section of Wildlife Management in SCS. By 1938, the staff nationwide had grown to 79 people.

Holt recruited such people as William Van Dersal and Edward H. Graham, who became noted experts and authors in the field. Graham's *Natural Principles of Land Use* examined the ways in which knowledge of living things could help guide land management.

Actual field work provided SCS biologists an opportunity not only to increase wildlife on the farms, but to learn new methods of wildlife enhancement. The field biologists worked with farmers and SCS field staff to incorporate wildlife considerations into farm plans. They disseminated the lessons of their practical field experience through numerous guidelines, technical bulletins, and popular articles.

With the expansion of programs

and national legislation to enhance fish and wildlife, the role of biologists and the requirements made of them have changed. Rather than serving as planners who spend a great deal of time developing the wildlife section of conservation plans, they now more likely work as trainers who instruct others in how to integrate biology with the various SCS programs.

Concerns about the impacts of small watershed projects on fish and wildlife habitat increased the biologist's role in evaluating design changes to lessen adverse impacts on wildlife. The passage of the Endangered Species Act and the National Environmental Policy Act have further broadened the scope of the biologist's role.

SCS biologists are now required to have a thorough knowledge of SCS and other USDA programs to address fish and wildlife concerns. Biologists advise on policy matters and evaluate the effectiveness of measures for fish and wildlife in the Great Plains Conservation Program, Water Bank, Conservation Reserve Program, "Swampbuster," and other programs to make the job of planning easier.

Farmers and ranchers are becoming more interested in wildlife-associated recreational income. This, plus the public's growing interest in fish and wildlife, will likely result in additional programs and authorities that need the expertise provided by biologists.

Douglas Helms, national historian, SCS, Washington, D.C., and **Billy Teels**, national biologist, SCS, Washington, D.C.

Providing extensive habitat for waterfowl is the primary goal.

Joint Venture In Waterfowl Management

BECAUSE OF ITS waterfowl value, Lake Thompson was identified in 1988 as South Dakota's first project under the Prairie Pothole Joint Venture of the North American Waterfowl Management Plan. The prairie pothole region is the key duck-producing area in North America. The Plan, an agreement between the United States and Canada, provides a framework for waterfowl management and conservation efforts in the two countries. It encourages joint ventures between government and private organizations.

The Soil Conservation Service and the Kingsbury County Conservation District are two of many agencies and organizations providing financial and technical assistance. SCS works with private landowners to plan for wetland retention and restoration and for establishing grass cover. Land entered in the Conservation Reserve Program (CRP) is being utilized in some cases.

A South Dakota task force, established in 1987, determined that widespread wetland drainage in the 506-square-mile Lake Thompson watershed had contributed to flooding. The task force suggested providing relief to those areas most affected by Lake Thompson and restoring natural storage sites in the upper watershed as a means of alleviating flooding.

In the project's phase one, land flooded by Lake Thompson is being purchased by the South Dakota Department of Game, Fish and Parks.



Wildlife habitat will be enhanced by a pilot project aimed at reducing flooding in the Lake Thompson watershed. (Photo by Bette Poppin.)

Providing extensive habitat for waterfowl is the primary goal. It will also be managed for public recreation.

Phase two focuses on wetland restoration and wetland habitat development on private lands. The goal is to retain existing wetlands, to restore 20,000 acres of drained wetlands within the watershed, and to establish grassy cover around existing and restored wetlands.

The Lake Thompson project was dedicated in June 1989, at the site of Frank Virchow's restored wetland. Virchow was the first landowner to sign up under this project.

SCS and the Kingsbury District are working with the Agricultural Stabilization and Conservation Service, the U.S. Fish and Wildlife Service, the South Dakota Department of Game, Fish and Parks, the National Wildlife Federation, and Ducks Unlimited.

The South Dakota Department of Game, Fish and Parks is funding food plots, weed control during tree establishment, and public hunting access leases through Pheasants for Everyone.

The Fish and Wildlife Service offers both perpetual and short-term easements to landowners for wetland acreages.

The Water Bank Program, Pheasants for Everyone, and CRP provide short-term protection of wetlands and grassy cover on surrounding uplands. So far, 488 acres of wetland within the watershed have been protected under these programs. Twelve basins covering 299 acres have been restored by the Fish and Wildlife Service; this represents 10 contracts with at least one landowner per contract. Many additional landowners signed up for restorations during the last CRP signup.

Project plans include long-term retention of wetlands and associated grasslands, development of wildlife habitat in a way that will improve water quality in the region, and maintenance of water storage capacity of the many wetland basins.

Connie Vicuna, biologist, SCS, Huron, S. Dak.

Alternative Staffing

Endeavor Benefits Wildlife

THE ONLY WAY to make an impact on wildlife in Missouri is through private landowners," said Bob Miller, a Missouri Department of Conservation (MDC) Wildlife Services biologist. "The Soil Conservation Service probably reaches more landowners than any other agency."

SCS and MDC consider establishing wildlife habitat so important that they arranged a cooperative endeavor. A MDC biologist is assigned to each of the seven SCS area offices to provide supplemental wildlife training to SCS field personnel. Funds for the biologists' salaries are provided by Missouri's one-eighth-cent sales tax collected specifically to support the wildlife program.

How did this agreement happen? The idea is basic: practices that benefit soil conservation also benefit wildlife.

"When district conservationists go out now — with the MDC training — to do a conservation plan," said Russ Mills, SCS State conservationist, "they can make recommendations to the landowner that will not only reduce soil erosion, but will improve wildlife habitat as well."

The idea surfaced in 1981 when northwestern Missouri was targeted by SCS as an area with the potential for critical soil erosion. Personnel and funds were redirected to this area, and MDC joined the effort by placing a Wildlife Services biologist in the SCS area office in St. Joseph.

The MDC administrators reasoned that fish and wildlife habitat management goals and soil conservation goals have compatible long-term objectives.

The cooperative endeavor in northwestern Missouri proved so successful that, when north-central Missouri was later designated as an area with the potential for critical soil erosion, a MDC wildlife biologist was assigned to the SCS Chillicothe area office also.

"There were some mixed emotions when we first came in because the district conservationists weren't sure how it was going to work," Miller said. "Their initial reactions were that they wouldn't have time for any additional work. But they soon found out that we were there to work with them, not cause them more work." Miller has since replaced the original wildlife biologist in the Chillicothe office.

Miller said that incorporating wildlife habitat into a conservation plan can involve as little as suggesting a grass mixture instead of straight fescue.

Missouri Department of Conservation wildlife biologist Bob Miller (left) talks over wildlife habitat plans with landowner Larry Watts of Keytesville, Mo. (Photo by Charlie Rahm.)

"A lot of time we don't even mention wildlife," Miller said. "We talk about leaving crop cover and improving pasture conditions. If landowners do that, they improve wildlife habitat."

The cooperative endeavor between SCS and MDC was expanded in 1986, and MDC wildlife biologists were added to the other five SCS area offices in Missouri. The seven State of Missouri biologists not only provide training to district conservationists and work with them in the field, but they also conduct workshops, participate in tours and field days, and work with the Elsberry Plant Materials Center to evaluate new plant varieties that may benefit wildlife habitat. They have also eased the workload associated with the "swampbuster" provision of the Food Security Act of 1985.

Charlie Rahm, public affairs specialist, SCS, Columbia, Mo.



Wildlife Biologist Hired

THE "STAKED PLAINS" region of eastern New Mexico, locally called El Llano Estacado, is becoming a haven for game birds, waterfowl, and other wildlife.

Quail calls, pheasant honks, and prairie chicken "booms" announce these species. Mallards, pintails, and teal winter here, then migrate north to nest.

American avocets, lark buntings, and red-winged blackbirds colorize the landscape with vivid rusts, subtly colored whites, blacks, and reds.

El Llano Estacado is characterized by ancient sinkholes that fill with water

"A lot of effort goes into these projects," said Schmidt. "Farmers don't see an immediate financial return for their work, but they are conserving the land while improving wildlife habitat."

and become little playas (lakes). Through the 1970's, no funds were available to hire the wildlife specialists needed to improve wildlife habitat in this area.

In 1985, creation of the Conservation Reserve Program (CRP) allowed the Soil Conservation Service, the New Mexico Department of Game and Fish, the U.S. Fish & Wildlife Service, and the Cooperative Extension Service of New Mexico State University to jointly hire an interagency biologist, Robert Schmidt, to help farmers prepare wildlife conservation plans in Quay, Roosevelt, and Curry Counties, where 490,000 acres have been entered into CRP.

Schmidt, with a major in range and wildlife science, had worked for SCS since 1970 as both a soil conservationist and a range specialist in many towns in eastern New Mexico. Now he is available to help them develop plans for wildlife habitat.

So far he has 75 landowners who are interested. One of his first customers was L. C. Lary, of Melrose.

"Lary is semiretired, and he wanted something to keep him busy," Schmidt said. "He has about 460 acres divided into three fields. One of the fields is about 150 acres. He is turning it into wildlife habitat."

"As it worked out," Schmidt added, "there is a wildlife master's degree candidate from New Mexico State University who wanted to use the Lary property as a research site for his thesis. So the second field will be left in weeping lovegrass as a baseline control field."

Lary is planting more than 900 trees in his habitat field. They include eastern red cedar and Pfitzer juniper, and thickets of sand cherry, Nanking cherry, Russian-olive, and wild plum. He uses a drip-irrigation system to water them. He is planting strips of milo, corn, and German millet for quail and pheasant during the winter.

"I want my land to be strictly for the birds," said Lary. "I'll fence it off during the summer to keep the hunters out."

"A lot of effort goes into these projects," said Schmidt. "Farmers don't see an immediate financial return for their work, but they are conserving the land while improving wildlife habitat."

Wildlife is returning and increasing in eastern New Mexico because of the new biologist, CRP opportunities, and landowners, like L. C. Lary, who want to participate and develop wildlife habitat.

Kathleen Diehl, contributing editor, *Soil and Water Conservation News*, SCS, Washington, D.C.



The Conservation Plan...

THE HUALAPAI INDIANS first contacted the Soil Conservation Service in spring 1980. They wanted to improve the wildlife habitat for desert bighorn sheep, Rocky Mountain elk, mule deer, antelope, wild turkey, and other wildlife on their tribal lands.

Charles "Tom" Stehly, at the SCS Field Office in Kingman, Ariz., talked to them, then called Dave Seery, area biologist at Flagstaff, for specialized assistance. The tribal lands cover more than 1 million acres.

Seery's meeting with Monroe Beecher, director of the tribe's wildlife department, in summer 1980 began a series of additional meetings and a half-dozen field trips to conduct wildlife habitat inventories that carried through late fall.

During their jeep adventures and 3- to 4-day backpack treks, often with Beecher's sons, Lyman and Ronnie, Seery saw plenty of wildlife and incredibly beautiful natural areas. He also learned a lot about the Indians themselves.

The Hualapais, a relatively small tribe of about 1,500, have always lived in and around the Grand Canyon (in the northwestern corner of the State). The Federal Government designated their lands a reservation in the 1920's. The Hualapais today benefit from their wildlife enterprise (sale of big game hunting permits), cattle grazing, and logging.

The horseshoe-shaped area has precipitous cliffs and knife-cut canyons

along its north border, the Colorado River; and mountain knolls cloaked in pinyon and ponderosa pine, Utah and one-seed junipers, and scattered Gambel oak run through the eastern and western sides. In between and along the sides are lush shortgrass and mid-grass prairies of Indian rice grass, sand dropseed, galleta grass, and blue grama.

Elk and deer browse their ways through forests and along meadow edges, while antelope can be seen frolicking in the distance. Bighorns "sure-foot" themselves up and down cliff slashes and into beautiful natural intrusions like National Canyon. Turkeys gobble from distant Gambel oak roosts or glide through deep pasture grasses in which cattle graze.

After his inventory field trips, Seery decided to prepare the wildlife conservation plan in five parts, with cooperators' agreement decisions for each: deer/elk (delivered in 1981), bighorn (delivered in 1982), and antelope, turkey, and small mammals (all delivered in early 1983). He made some inventory followup trips during the preparation period.

The overall plan included an area map (part aerial, part topographic), generalized soils information (the reservation is being more fully surveyed and mapped now), and alternatives — extra things the Indians may do in the future if they wish.

Some of the many wildlife habitat improvements to be undertaken include: improving natural springs for water catchment; building artificial water catchments; fencing to protect wildlife winter-grazing sites, to exclude burros and wild horses, to allow wildlife crossings, and to protect natural springs; and adjusting cattle grazing systems to also benefit wildlife.

Other improvements include log-

ging restrictions to avoid disturbing elk during calving and deer during fawning periods, to leave desirable roost sites for turkeys, and to leave adequate numbers of nut producers like Gambel oak and pinyon pine.

Seery has revised the plan in the intervening years as a result of servicing (monitoring or followup) visits he makes with the Beechers a couple of times a year.

One such recent visit to bighorn country was, according to a small part of the overall plan, to "... *investigate whether a particular existing spring could be modified into a water catchment...*" from which the sheep could



and Servicing ... For Wildlife



drink. He tends to keep a lot of notes and thoughts both on paper and in his head during such visits. And the final product might read almost like a diary (see right).

Seery says the Hualapais are making good progress on their wildlife conservation plan. Nevertheless, he feels that continued followups, with the obligatory bucking-bronco jeep rides and straight-up backpack trips, will still benefit the Hualapais and SCS — as well as his own frame of mind.

Paul G. DuMont, associate editor, *Soil & Water Conservation News*, SCS, Washington, DC.



The Edge ... a page from Dave Seery's "diary"

THE LEDGE WAS not all that wide. Maybe 6 feet. One false step or a slip would result in disaster. Sandstone cliffs were above and below me.

A fall of 200 or 300 feet to the bottom of the cliff would ruin my whole day! I stole a glance over the edge. The view made me dizzy. Large boulders far below looked like pebbles.

"Just watch the trail," I told myself.

This is a narrow canyon of steep cliffs and red sandstone. It is called National Canyon and is located in the Grand Canyon in northwest Arizona.

The bright, blue sky, and crisp, clean air make things appear closer than they really are.

The Hualapai Tribe has a wildlife management operation on their reservation. Desert bighorn sheep is one of the featured species.

I was there to look at a small spring. An evaluation would determine whether to improve it permanently for bighorn sheep use.

We would simply install a rock-rubble masonry trough at the base of the cliff to catch the water that seeps from the cracks. In this hot, harsh desert environment, water is life itself. If we could catch some before it seeped into the sand, it would create a water hole that was previously unavailable.

My guides for the day were the Beecher brothers, Lyman and Ronnie. We had been friends for several years. We continued down the trail to the canyon bottom and followed the arroyo for about a mile toward the main gorge.

"It's up there," said Lyman as he pointed high up to the base of the cliff. A small patch of verdant vegetation amongst the sand-colored boulders at the base of the cliff marked the "wet spot." He had been here before and agreed to bring me.

The slope was steep. I began to sweat. Even though it was April, the hint of hot weather to come was in the air.

Ronnie suddenly stopped, eyes glued to the ground. He said, "They're here. Probably watching us." I went over and looked at the large bighorn sheep track in the dust. "It was made this morning," he added.

As we reached the spring I could see immediately that it was a candidate for treatment. A few cattails were an indication of the permanence of the water. The overflow from the trough would maintain these plants as before. The lifeblood of the west was trickling from a crack in the cliff base and running into the sand. If we cleared the sand covering the base, the trough could be built on solid rock. The cliff itself would be the back side of the structure. Just like the four springs in other canyons, which we had improved over the years, this one would provide yet another source for sheep to drink.

A new rock trough would be installed according to specifications. This job would be paid for by Tribal funds received from hunting and then put back into habitat improvements for the animals.

On the way back up the trail I had regrets above leaving. The "Grand" is always an inspiring experience. You come away rejuvenated and humble.

This conservation plan is a pleasure to service, except for the trail which passes next to "the edge."

“... the design and installation of a constructed wetland requires a team effort. . .we have this kind of effort in Mississippi.”

Build Your Own Wetland

CAN 11,000 WETLAND plantings be effective as a low-cost, low-maintenance filtration system for treating lagoon discharge of animal waste? Can they provide additional wildlife habitat and attract wildlife? Can they improve water quality?

In Mississippi, that's what the Soil Conservation Service, the Newton County Soil and Water Conservation District, the Mississippi Agricultural and Forestry Experiment Station, and Mississippi State University want to know. To help them find out, a major water quality project there will involve constructing artificial wetlands.

“I am optimistic we can get positive results from this study that can open new doors for us with new technologies,” said L. Pete Heard, SCS State conservationist for Mississippi.

Objectives of the 5-year project include:

- evaluating and developing design criteria for constructed wetlands as components of animal waste treatment systems;
- evaluating the performance of different plant species in removing potential water quality pollutants; and
- determining the economics of constructed wetlands in agricultural non-point-source pollution abatement programs.

Evaluators will use the Coastal Plains Experiment Station near Newton, Miss. The station has 166 Holstein cows, a loafing shed, a dairy parlor, and anaerobic and aerobic lagoons.

The wetland will be “constructed” near the downstream toe of the aerobic lagoon embankment. It functions as a surface-flow, gravity-drop system.

Six parallel cells are used to filter the waste water. Each cell has a first stage 98 feet long abutting to a second stage 49 feet long. Each cell is 15 feet wide with 13 inches of liquid depth. One cell is used as a control.

The 11,000 wetland plants, including cattail, bulrush, canna, and pickerelweed, were planted in the five non-

control cells. Plantings were made at 1-foot intervals to assure maximum coverage in the shortest period of time. Microbes live and thrive at the plant roots; they use and break down potential pollutants into products that plants can use for growth.

Plantings have been completed, and some aquatic plants are already established and surviving. Control studies of existing water quality levels have been done.

If the plantings survive the winter, trial discharges of animal waste water will be run through the plants starting in April 1990. Ground water will also be monitored to ensure that no potential ground water contamination occurs.

Heard added, “The design and installation of a constructed wetland requires a team effort. Agricultural engineers, hydrologists, and ecologists must work together to make sure the wetlands work properly. We have this kind of effort in Mississippi.”

Lon Strong, State ecologist, SCS, Jackson, Miss., and **Becky McNair**, public affairs specialist, SCS, Jackson, Miss.

Cells containing more than 11,000 wetland plants are used to filter waste water in the Mississippi project. (Photo by Lon Strong.)



"Vegetative filters help reduce sediment, crop nutrients, pesticides, and other chemicals that may enter the channel. . . ."

Filter Strips In the Twin Rush

HOW DIFFERENT is the Twin Rush from any other Hoosier watershed project? Seven and one-half miles of vegetative filters along the channel and a successful education program — that's how different.

The Twin Rush PL-566 Watershed Project in Washington County, Ind., has one multiple-purpose and two single-purpose structures built for flood control and water management in the 28,000-acre watershed. Thanks to the Conservation Reserve Program (CRP), the 4.7 miles of filter strips and 2.8 miles of other permanent cover planted now add extra protection along the Twin Rush Creek channel.

"Vegetative filters help reduce quantities of sediment, crop nutrients, pesticides, and other chemicals that may enter the channel," said Dave Elgin, SCS district conservationist in Washington County. "And 7.5 miles of them greatly improves the beauty and serenity of the countryside."

Although not part of the original channel work started in 1986, vegetative filter strips became a desirable option for farmers under CRP in 1987. Such strips of grass, trees, or permanent wildlife plantings reduce soil erosion, improve water quality, and provide wildlife cover; and, they gain the farmer CRP rental payments.

SCS personnel in Washington County recognized their usefulness



The Twin Rush Watershed in Washington County, Ind., has 7½ miles of vegetative filters. The filters help prevent sediment, crop nutrients, and other chemicals from entering the channel. (Photo by Dave Elgin.)

along the Twin Rush and worked successfully with the Twin Rush Creek Conservancy District and the Washington County Soil and Water Conservation District (SWCD) to encourage landowners who were planting row crops in fields adjacent to the creek to convert part of their cropland into filter strips using CRP and other programs. The educational campaign worked — at least 70 percent of the land immediately adjacent to the channel is now replanted in filter strips and permanent cover.

Orra Wade, Conservancy District contracting officer, was pleased with the enormous cooperation and support from Washington County citizens. Joseph Scifres, Washington County SWCD chairman, added, "Our farmers' acceptance of filter strips is benefiting the entire community."

Jesse Wilcox, State agronomist, SCS, Indianapolis, Ind., and **Mary Cressel**, public affairs specialist, SCS, Washington, D.C.

Her "something else" became a wildlife refuge, and she began her second career as a wildlife manager.

"Something Else" for Wildlife

IT WAS 40 ACRES of wheat, barley, and peas along Idaho's Clearwater River when Alta Gargotto, of Modesto, Calif., bought the land in the 1960's. She saw this not only as her retirement haven . . . but maybe as "something else."

The "something else" took form as an idea one day in 1985: a visiting biologist from the Idaho Department of Fish and Game (IDFG) suggested she convert the dryland grains to wildlife habitat.

In 4 short years, the idea grew and her haven became a wildlife refuge, and she began her second career as a wildlife manager. Here's how she did it.

After purchasing her haven, Gargotto visited it often during vacations and on long weekends—and grew to love it. She had leased out the field areas to a local farmer who had continued growing wheat, barley, and peas, but she kept looking for that "something else."

When Bill Rybarczyk, an Idaho Department of Fish & Game wildlife biologist, happened by in 1985, they chatted about wildlife and the Conservation Reserve Program (CRP). He thought that her setting along the river would be perfect as a wildlife refuge.

After Gargotto submitted her CRP bid to the Agriculture Stabilization and Conservation Service (ASCS) and signed up as a cooperator with the Idaho County Soil & Water Conservation District (SWCD), she began work-



ing on a conservation plan with Bob Sandlund, a Soil Conservation Service soil conservationist in the Grangeville, Idaho, office.

"On the 26 acres allowed into CRP, we proposed seedings and plantings to both control erosion and create cover and food for animal and bird life," Sandlund said. "We gave Gargotto lots of information about palatable plants for wildlife and nest-site suggestions for wood ducks and Canada geese."

The final plan included grass, legume, and forb seedings; 1,300 tree and shrub plantings; and specifications for a wildlife pond.

"The ground cover seedings for the wildlife food and cover and for erosion control were very successful," Sandlund said.

A local Boy Scout troop from nearby Kooskia, Idaho, worked an April weekend helping her plant the trees and shrubs. The mixture included Austrian pine, white pine, Rocky Mountain juniper, white oak, Siberian crabapple, dwarf mountain-ash, vine maple, plum, syringa, cotoneaster, Siberian peashrub, Tartarian honeysuckle, blackberry, and snowberry.

The Scouts earned parts of the Soil and Water Conservation merit badge for their planting efforts.

Neil Peterson, SCS soil scientist, Jack Palmer, SCS area engineer, and Sandlund surveyed, tested, and designed the pond for wildlife use. Gargotto contracted locally for the pond construction.

Gargotto was eligible for cost-sharing on the CRP acreage with ASCS and the SWCD, and for cost-sharing on the wildlife portion of her remaining acres with the Idaho Department of Fish & Game.

"Alta Gargotto is the perfect person to do a project of this kind," Sandlund said. "She loves wildlife and providing for them. This past summer she had ospreys nesting for the first time.

"The way she changed farmland with the potential for critical erosion into wildlife habitat will be a model for others to follow," Sandlund concluded. "Her wildlife refuge really is something!"

Finally, it is "something else."

Miki Wemhoff, district assistant, Idaho County Soil and Water Conservation District, Grangeville, Idaho.

"This project fits in perfectly with the push to clean up the Chesapeake . . ."

Wetlands Filter Waste Water

"WE MILK 130 COWS a day here," said Robert Hilton, a Maryland dairy farmer. "That's a lot of wash water. We had to have a system that would handle the volume and get the water clean."

For many years, the Soil Conservation Service has had a formula for handling dairy waste that worked for many farmers: build a pit, store the waste in a slurry, and pump and spread it in a way that improves water quality.

But Hilton was looking for something better. His 14-year-old waste pit was not designed to handle the volume

of water he now needed to clean his dairy parlor, and he needed a way to treat the water before it reached the creek below his farm.

Nadine Vurdelja, a graduate student and Montgomery County Soil Conservation District employee, suggested a newer technology that uses wetlands to trap nutrients and sediments.

Solids are still pit-stored in a slurry, but dairy parlor waste water is pumped into an artificial wetland where vegetative filtering and microbial action work to clean up the waste water.

The principals of this new technology have been used for 20 years in treating acid mine drainage and in secondary treatment of public waste water. Little is known about using wetlands to remove nutrients and sediments from animal wastes.

Hilton thought this new technique, though previously unproven, might solve his problems, and agreed to have Vurdelja design a wetland management system for his farm.

"We have already installed monitoring wells to test ground water before his installation starts," Vurdelja said. "After the system is in place on Robert Hilton's farm, we'll collect data to determine the effectiveness." (Vurdelja will use the research in her graduate studies.)

The Montgomery County Department of Environmental Protection has agreed to assist the SWCD in long-term monitoring of the system. Because of the system's potential universal benefits, Hilton is receiving cost-sharing through the Agriculture Stabilization and Conservation Service and the Maryland Department of Agriculture.

"The beauty of this system is that it can save time and money," Vurdelja explained. "There will be very little maintenance involved. And it should cost much less than systems using a concrete pit and about the same as systems using an earthen pit."

The creek near Hilton's farm is a tributary of the Patuxent River, which flows into Chesapeake Bay. Both have been targeted by Maryland for extensive clean-up operations. "This project fits in perfectly with the push to clean up the Chesapeake," said Vurdelja. "We are looking at the possibility that artificial wetlands will eventually become a viable best management practice (BMP) in this State and, perhaps, nationally."

If all goes well, creating artificial wetlands may be designated a practice and incorporated into Maryland's BMP's. Vurdelja may see her research results help to improve the environment and benefit dairy farmers. And Robert Hilton may be the first in line to thank her.

Lissa Fox, soil conservationist, SCS, Montgomery County, Md.





City Planners Study Wetlands

Southern Maine towns and cities have a boom-bust dilemma: as residential and commercial construction booms, thousands of acres of land are rezoned, and many fragile wetlands may be lost forever.

Commissions zone and boards plan to the best of their knowledge. But this rapid growth has sent town officials scrambling to learn more about how such construction affects Maine's natural resource heritage.

Part of the problem is misunderstanding: what is a wetland, they ask. Part of the solution is education; and three wetlands workshops held for over 160 Maine town officials in 1988 and 1989 may now help these local decision makers better understand the consequences of their future actions.

"Much of the land-use change in southern Maine involves or affects wetlands," said Ray Voyer, former SCS district conservationist. "Complicated wetland laws and conflicting definitions of just what is a wetland have local decision makers confused."

Soil Conservation Service resource specialists participated in the wetlands workshops conducted by the Thresh-

old to Maine Resource Conservation and Development (RC&D) Area Council. Town officials and interested land developers learned about wetland laws, wetland values, and techniques used in delineating wetland boundaries.

The 1988 workshops included lectures and field exercises. The 1989 workshop, requested by town officials as a followup, was a "hands on" field day near Old Orchard Beach, Maine, that stressed identification of wetland soils and plants.

The York County Soil and Water Conservation District had requested RC&D officials to hold such workshops. Resource specialists from the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and the Maine Department of Environmental Protection also participated.

"This is exactly the kind of information that planning boards need," said Alice Rand, a Cape Elizabeth Planning Board member. "Now when a development proposal comes before the Board, we will be able to recognize potential problems and ask the right kinds of questions."

Donald J. Pettit, former coordinator, Threshold to Maine RC&D, Westbrook, Maine

Norm Kalloch (right), assistant State soil scientist, shows a city planner the different soil mottles that indicate where current water tables exist. (Photo by Donald Pettit.)



Wetland Restoration Help

Two video aids are available for the restoration of wetlands: "The Value of Our Hoosier Wetlands" and "Restoring Wetlands on Your Property," both produced by Purdue University. The videos have been prepared as a guide to instruct landowners in the restoration of wetlands on their own property.

The videos were produced by Brian Miller, Purdue University extension wildlife specialist. The first, "The Value of Our Hoosier Wetlands," is a 13-minute video that not only discusses the ecological and environmental importance of wetlands, but also explores their economic, recreational, and agricultural importance as well. Miller produced this video with the landowner in mind, showing several examples of properly managed wetlands that are providing benefits to the owners.

The second, "Restoring Wetlands on Your Property," is an 11-minute video that details the U.S. Fish and Wildlife Service program that restores previously drained wetlands.

Both videos are available for purchase or rent. Purchase price is \$15 each, and they are available from the Purdue University Agricultural Communication Service, Media Distribution Center, 301 South Second St., Lafayette, IN 47905-1092. To rent, contact Purdue Film Library, Stewart Center, Room 851, West Lafayette, IN 47907.

Measurements for Terrestrial Vegetation

by Charles D. Bonham

This text, developed from courses taught by the author at Colorado State University over a 20-year period, deals with principles and procedures used

to obtain structural measurements of terrestrial vegetation communities. It introduces four commonly used measures of vegetation and associated units used to obtain such measures — frequency, cover, density, and biomass. The author also develops these measurements from a "statistical variability viewpoint."

In general, "plant community ecology has emphasized two broad categories: functional processes in plants and structural characteristics of plants. That

is, the weight of individual plants, plant size and shape, leaf arrangements, and numbers of individuals all result from physiochemical processes of plants . . ."

This technical book may be useful to farmers and landowners who are planning to use plant cover for erosion control, as well as conservationists interested in learning more about terrestrial plants. It is available for \$49.95 from John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158.

Rinse Pesticide Containers: Rinse and Win!

by The Freshwater Foundation

An information packet about the proper rinsing of empty pesticide con-

tainers has been developed by the Minnesota Pesticide Container Advisory Committee, a group composed of farm, environmental, and industrial organizations, the Minnesota Extension Service, and State agencies. The packet is designed for organizations and individuals concerned about maintaining ground water quality through the proper usage of pesticides. It includes

a large "Rinse and Win" poster and a series of factsheets on pesticides, pesticide containers, the importance of proper rinsing, methods of proper rinsing, and a list of references for further information.

"Rinse and Win" packets can be ordered at no cost from The Freshwater Foundation, 2500 Shadywood Road, Box 90, Navarre, MN 55392.

Minerals in Soil Environments, Second Edition

Co-Editors: J.B. Dixon and S.B. Weed

This extensive technical text (1,244 pages) is an outgrowth of the Symposia on Recent Developments in Soil Mineralogy held in 1984 and 1985 by the Soil Science Society of America. The foreword of the book states that "a thorough knowledge and appreciation

of the minerals in soils is critical to our understanding and use of soils for the betterment of mankind while protecting our fragile environment. Scientists from many disciplines use this knowledge in fundamental and adaptive research on soil erosion, weathering, classification, fertility, physics, chemistry, and biochemistry, as well as in the engineering aspects of soils . . ."

The book covers basic mineralogy, surface chemistry, mineral equilibria, soil organic matter, mineral occurrence, and minerals in various chemical and structural groups.

The authors of the text represent an international selection of 38 scientists who are mineral experts.

Hardcover copies of this publication are available from the Soil Science Society of America, Attention: Book Order Department, 677 South Segoe Road, Madison, WI 53711, at a cost of \$90.

NEW IN PRINT is prepared by Thomas J. Kergel, Editorial Assistant, SCS, Washington, D.C.

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Conservation Calendar

December	3-6	International Symposium on Biotechnology: Science, Education, and Commercialization, Gainesville, Fla.
	4	Tuskegee University's George Washington Carver Memorial Lecture, Tuskegee, Ala.
	5-6	USDA Hispanic Employment Program Symposium, Pan American Univ., McAllen, Tex.
	5-7	National Farmers Organization National Convention, San Antonio, Tex.
	5-7	11th Biennial Range Beef Cow Symposium, Rapid City, S. Dak.
	6-8	National Association of Government Communicators Annual Conference, Arlington, Va.
	12	Agricultural Research Service Scientists Meeting/Entomological Society of America National Conference, San Antonio, Tex.
	12-15	American Society of Agricultural Engineers International Winter Meeting, New Orleans, La.
	17-18	Sixth International Symposium on Agricultural and Food Processing Wastes, Chicago, Ill.
January	7-11	American Farm Bureau Federation 71st Annual Meeting, Orlando, Fla.
	10-13	National Association of Wheat Growers 40th Annual Convention, San Antonio, Tex.
	12	Purdue University's Farm Forum, W. Lafayette, Ind.
	14-16	U.S. Wheat Associates Convention, San Antonio, Tex.
	19-Feb. 4	Southwestern Exposition & Livestock Show, Fort Worth, Tex.
	21-23	Idaho Feed & Grain Association Annual Convention, Boise, Idaho
	21-24	National Grocers Association Convention, San Antonio, Tex.
	21-26	National Council of Farmer Cooperatives Convention, San Diego, Calif.
	26	Southern Agribusiness Forum, Memphis, Tenn.
	29-31	National Cattlemen's Association Convention, Nashville, Tenn.
	30-31	Eastern Iowa Conservation Tillage Show, Cedar Rapids, Iowa
February	2-6	American Sugarbeet Growers Association Convention, Washington, D.C.
	2-6	National Food Processors Association Convention, San Francisco, Calif.
	4-8	National Association of Conservation Districts Convention, San Diego, Calif.
	7	Southern Association of Agricultural Sciences, Little Rock, Ark.
	11-13	United Fresh Fruit and Vegetable Association Convention, San Antonio, Tex.
	15-16	National Frozen Food Association Convention, Washington, D.C.
	20	American Simmental Association Convention, Alexandria, Va.
	21-23	National Corn Growers Association Annual Meeting, Phoenix, Ariz.
	25-27	National Governors' Association Convention, Washington, D.C.